

Notice of Allowability

Application No.

10/519,744

Applicant(s)

AUVRAY ET AL.

Examiner

Ramnandan Singh

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Feb 20, 2008.
2. ☒ The allowed claim(s) is/are 1-3, 5-11, 13-19, 22-27, 29-32 and 34-41.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date Feb 20, 2008
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This action is in response to applicant's response filed on Feb 20, 2008. **Claims 1-3, 5-11, 13-19, 22-27, 29-32, 34-41** are pending in the present application.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

Claim 1 recites an echo processing device and limitations for the following: "means for obtaining a coupling variable COR characteristic of the acoustic coupling between the direct signal X_{In} or the input signal X_{2n} and the output signal Y_{In} , by calculating a correlation between the direct signal X_{In} or the input signal X_{2n} and the output signal Y_{In} ; wherein said gain calculation means ~~being adapted~~ is configured to calculate the receive gain G_{rn} and the send gain G_{en} based on said coupling variable ". The prior art of record does not teach these limitations. Therefore, claim 1 and its dependent claims are indicated allowable.

Claim 10 recites an echo canceller and limitations for the following: "means for calculating the adaptation μ_n , said adaptation calculation means

comprising means for estimating the power P_{in} of the input signal X_{2n} and the power P_{3n} of the signal Y_{3n} and means for obtaining a first coupling variable $COR2$ characteristic of the acoustic coupling between the input signal X_{2n} and the signal Y_{3n} from the echo generator system, by calculating a correlation between the input signal X_{2n} and the signal Y_{3n} ; wherein the adaptation μ_n of the identification filter \sim is calculated as a function of the estimated powers P_{in} , P_{3n} and as a function of the first coupling variable $COR2$ ". The prior art of record does not teach these limitations. Therefore, claim 10 and its dependent claims are indicated allowable.

Calim 22 recites an echo canceller device and limitations for the following: "wherein said gain calculation means is configured to calculate each receive gain $G_{rn}(i)$ and each send gain $G_{en}(j)$ based on the N coupling variables $COR(j,i)$ calculated for the associated send channel l ". The prior art of record does not teach these limitations. Therefore, claim 22 and its dependent claims are indicated allowable.

Calim 31 recites an echo canceller for a multi-channel communication system and limitations for the following: "wherein the means for calculating the adaptation step $\mu_n(i,j)$ for a filter F_{ij} associated with a receive channel i and

a send channel i is configured to calculate the adaptation step $\mu_n(i,j)$ as a function of the powers P_{1ni} , for i varying from 1 to N , estimated for the N receive channels, as a function of the estimated power P_{2nj} of the send channel j , and as a function of the N coupling variables $COR(j,i)$, for i varying from 1 to N , associated with the send channel j ". The prior art of record does not teach these limitations. Therefore, claim 31 and its dependent claims are indicated allowable.

Claim 40 recites an echo canceller device and limitations for the following: "wherein the adaptation μ_n of the identification filter is calculated as a function of the estimated powers P_{1n} , P_{3n} and as a function of said second coupling variable $COR2$ ". The prior art of record does not teach these limitations. Therefore, claim 40 and its dependent claims are indicated allowable.

New search updates reveal no other prior art which teaches the limitations in the context of the claims.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays,

should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

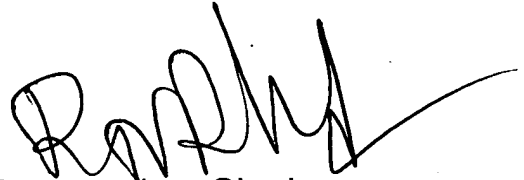
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If

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you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Ramnandan Singh', with a long horizontal stroke extending to the right.

Ramnandan Singh
Primary Examiner
Art Unit 2614